

7. (a) Obtain the fixed base index using the following chain base index (C.B.I.) number :

Year	C.B.I.
2005	105
2006	75
2007	71
2008	105
2009	95
2010	90

- (b) Distinguish between the seasonal and random variations.  
 (c) Describe the 'Ratio-to-Moving Average Method' for measurement of seasonal fluctuations in a time series.

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This question paper contains \*4 printed pages]

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S. No. of Question Paper : 7186

Unique Paper Code : 62377501 J

Name of the Paper : Applied Statistics-I

Name of the Course : B.A. (Programme) Statistics : DSE I/II

Semester : V

Duration : 3 Hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt five questions in all.

- (a) Index numbers are Economic barometers. Comment on the statement, and bring out their limitations.  
 (b) Explain the various steps to be taken in the preparation of data for analysis of a time series. Also describe in brief the objectives of analysis of a time series. 7,8
- (a) What do you mean by decomposition of a time series ? Explain in brief the various models that are used in the decomposition of a time series.

- (b) Compute price index and quantity index number for the year 2012 using, the year 2011 as the base year :

Commodity	2011		2012	
	Price	Quantity	Price	Quantity
I	1.72	40	1.92	42
II	1.80	30	1.85	35
III	1.90	10	2.10	17
IV	1.33	20	1.66	14
V	2.12	16	3.15	12

- (i) Marshall and Edgeworth formula
- (ii) Bowley formula. 7.8
3. (a) Explain the three yearly moving average methods to measure the trend with examples. Also, state its merits and demerits.
- (b) Explain the significance of the family budget enquiry in the construction of cost of living index numbers. 7,8
4. (a) Distinguish between unweighted & weighted methods of computing an index number.
- (b) Describe the method of least squares. Explain how you would obtain estimates of the constants of a straight line. 8,7

5. (a) Prepare price and quantity index numbers for 2005 with 2002 as base year from the following data :

Year	I		II		III		IV	
	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.
2002	6.00	6	8.75	7	10.63	5	13.50	10
2005	7.50	8	9.80	11	8.75	7	13.75	10

And verify that the Factor Reversal Test and Time Reversal Test are satisfied by Fisher's formula.

- (b) What do you mean by deseasonalization of data ? Explain the procedure of finding the deseasonalized values from a time series. 8,7
6. (a) Give an outline of the cyclic variation in a time series along with relative merits and demerits.
- (b) Define method of link relatives as used in the analysis of time series. Also state its merits and limitations. 7,8